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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR  | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|-----------------------|---------------------|------------------|
| 10/707,150  | 11/24/2003  | Frederick W. Kern Jr. | BUR920030085US1     | 1149             |
| 29625   | 7590        | 06/13/2005            | EXAMINER            |                  |
| MCGUIRE WOODS LLP<br>1750 TYSONS BLVD.<br>SUITE 1800<br>MCLEAN, VA 22102-4215 |             |                       | MARKHAM, WESLEY D   |                  |
|   |             |                       | ART UNIT            | PAPER NUMBER     |
|   |             |                       | 1762                |                  |

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                                    |  |
|------------------------------|-------------------------------|------------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/707,150 | Applicant(s)<br>KERN, FREDERICK W. |  |
|                              | Examiner<br>Wesley D. Markham | Art Unit<br>1762                   |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 and 31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 and 31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. Acknowledgement is made of the amendment filed by the applicant on 3/15/2005, in which Claims 1, 17, 18, and 25 were amended, and Claim 31 was added. **Claims 1 – 28 and 31** are currently pending in U.S. Application Serial No. 10/707,150, and an Office action on the merits follows.

### *Drawings*

2. The drawings (2 sheets) filed by the applicant on 10/14/2004 are acknowledged and approved by the examiner.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1, 2, 9, 12, 14 – 18, 24 – 28, and 31** are rejected under 35 U.S.C. 102(e) as being anticipated by Olgado et al. (USPN 6,689,418) for the reasons set forth in

paragraph 2 of the previous Office action (i.e., the non-final Office action mailed on 12/15/2004) and below.

5. As amended, independent **Claims 1, 18, and 25** (as well as new independent **Claim 31**) all require keeping track, with a control, of each of the plurality of contacts (or gripping mechanisms) which are released and engaged with the workpiece. This limitation is taught by Olgado et al. Specifically, Olgado et al. teaches gripping the substrate with a first set of fingers "72", performing a number of processing steps (e.g., rinsing, drying, cleaning) while the substrate is spinning, gripping the substrate with a second set of fingers "73" while the substrate is spinning, releasing the first set of fingers "72" while the substrate is spinning, and continuing to clean the substrate while it is gripped with the second set of fingers "73" (Figure 2; Col.4, line 43 – Col.6, line 33). Fingers "72" and "73" are actuated while the substrate is spinning independent of the rotation by using well-known electric or pneumatic actuators (Col.6, lines 5 – 14), and a controller controls the timing of the various steps, including the steps of gripping the substrate with the first set of fingers, releasing the first set of fingers, and gripping the substrate with the second set of fingers, by transmitting control signals to the necessary components (i.e., the fingers) (Fig.2, Col.6, lines 29 – 33). This process control taught by Olgado et al. is reasonably interpreted to be equivalent to "keeping track, with a control, of each of the plurality of contacts which are released and engaged with the workpiece", as required by the claims. For example, the controller of Olgado et al. determines which fingers (i.e., only the first set of fingers, only the second set of fingers, or both) are in

contact (i.e., engaged) with the substrate and which fingers are not in contact with (i.e., released from) the substrate during each step of the substrate processing. Thus, the controller "keeps track" of each of the plurality of contacts (i.e., the first set of fingers and the second set of fingers) which are released and engaged with the workpiece. If the controller of Olgado et al. did not, on some level, "keep track" of which set of fingers was engaged and which set was released during the process, the process explicitly taught by Olgado et al. could not be successfully carried out. In other words, the act of using a controller to insure that certain fingers are in contact with the substrate at certain periods of time and other fingers are in contact with the substrate at other periods of time, as taught by Olgado et al., constitutes keeping track of each of the contacts which are released and engaged with the workpiece. Please note that, during the examination process, claims are to be given their broadest reasonable interpretation (*In re Morris*, 127 F.3d 1048, 1054-1055, 44 USPQ2d 1023, 1027-1028 (Fed. Cir. 1997)). New Claim 31 also requires that each of the plurality of contacts is separately released from and moved into contact with the workpiece in a sequential order or each of the plurality of contacts is separately released from and moved into contact with the workpiece in an alternating order. Olgado et al. teaches this limitation. Specifically, Olgado et al. teaches that the first set of fingers "72" is moved into contact with the workpiece while the second set of fingers "73" is released from the workpiece, and then the second set of fingers is brought into contact with the workpiece while the first set of fingers is released from the workpiece (Figure 2; Col.4, line 43 – Col.6, line 33). As such, all of the contacts

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(i.e., "each of the plurality of contacts") are alternately released from and moved into contact with the workpiece. Please note that the claim does not require repeating the "alternating order" step.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 3 – 8, 10, 11, 13, and 19 – 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Olgado et al. for the reasons set forth in paragraph 5 above and in paragraphs 2 and 4 of the previous Office action.

### ***Response to Arguments***

8. Applicant's arguments filed on 3/15/2005 have been fully considered but they are not persuasive.

9. Regarding the 102(e) rejections based on Olgado et al., the applicant argues that Olgado et al. does not teach keeping track, with a control, of each of the plurality of contacts or gripping mechanisms which are released and engaged with the workpiece. The applicant states that the controller of Olgado et al. is merely used to engage or release the gripping fingers from the workpiece, and is not disclosed as

being capable of keeping track of the positions of the gripping fingers. In response, this argument is not convincing and has been fully addressed in paragraph 5 above. Briefly, the controlling process of Olgado et al. determines which fingers (i.e., only the first set of fingers, only the second set of fingers, or both) are in contact (i.e., engaged) with the substrate and which fingers are not in contact with (i.e., released from) the substrate during the substrate processing steps by transmitting the necessary control signals at appropriate times. Thus, the controller "keeps track" of each of the plurality of contacts (i.e., the first set of fingers and the second set of fingers) which are released and engaged with the workpiece. If the controller of Olgado et al. did not, on some level, "keep track" of which set of fingers was engaged and which set was released during the process, the process explicitly taught by Olgado et al. could not be successfully carried out. In other words, the act of using a controller to insure that certain fingers are in contact with the substrate at certain periods of time and other fingers are in contact with the substrate at other periods of time, as taught by Olgado et al., constitutes keeping track of each of the contacts which are released and engaged with the workpiece. It appears to the examiner that the applicant is overly narrowly interpreting the "keeping track" limitation.

10. Regarding the 102(e) rejection of Claim 12, as well as new Claim 31, the applicant argues that Olgado et al. does not disclose the separately releasing and engaging of the contacts in alternate order. In response, this argument is not convincing and has been fully addressed in paragraph 5 above.



11. Regarding the 35 U.S.C. 103(a) rejections based on Olgado et al., the applicant

argues that there is no motivation or rationale disclosed or suggested in the prior art to modify the applied reference in the manner suggested by the examiner. In response, this argument is not convincing. The examiner notes that there are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art (*In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998)). In this case, the overall goal of the art of record (i.e., Olgado et al.) is to insure that the entire substrate is adequately exposed to the (cleaning) solution during the cleaning step (Col.5, lines 58 – 67, Col.6, lines 1- 14). Correspondingly, the undesired masking of portions of the substrate by a single set of fingers used to hold the substrate during the cleaning process is the problem to be solved by Olgado et al. This problem can be solved by using two or more independently actuated sets of fingers (Col.6, lines 46 – 48). As such, the nature of the problem to be solved would have motivated one of ordinary skill in the art to modify the Olgado et al. reference / process in the manner suggested by the examiner. For example, one of ordinary skill in the art would have been motivated to use either a smaller number or larger number of fingers or finger sets depending on factors such as the size of the substrate, etc., so long as the substrate can be securely held and is not masked by the fingers during the cleaning process (see, for example, Kawashima et al. (USPN 5,192,087), Shinohara (JP 04-311034 A), and Harada (JP 04-186626 A), all of which are cited to show that the knowledge of one having ordinary skill in the



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art includes using a relatively small number of fingers per set (e.g., 3) to hold a substrate during processing). Additionally, one of ordinary skill in the art would have been motivated to release and engage the fingers of Olgado et al. either alternately or sequentially because releasing and engaging the fingers in either manner would be expected to achieve the same result and solve the problem disclosed by Olgado et al. (i.e., insuring that the entire substrate is cleaned by changing the portions of the substrate masked by the fingers during the process, regardless of the order in which the fingers are engaged and released from the substrate). Please note that the selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results (*In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946)).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D. Markham whose telephone number is (571) 272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



WDM

Wesley D Markham  
Examiner  
Art Unit 1762



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